

UIG Collaboration in Malaysia: The Significance of Intermediary Organization

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Abstract:

In recent years, there has been a huge debate among researchers in identifying the best University-Industry-Government (UIG) partnership model which could drive innovation. The problems with UIG collaboration are due to differences in objectives, functions, and mechanisms among stakeholders, therefore such collaboration is difficult to form and sustain. A review of relevant literature and critical insights related to the topics from various management theories/ models are discussed in this paper. Some researchers suggested the concept of Triple Helix Model (TH) where UIG should work together as a team to create innovative and successful outcomes. Innovation is one of the national agendas in increasing the quality and productivity of our economic growth through strategic partnership. The government has introduced intermediary organization to harness the collaboration amongst UIG where it plays a crucial role in facilitating the TH. Therefore, this paper aims to further elaborate the significance of intermediary organizations in stimulating the TH. It also incorporates the concept of strategic partnership and innovation which become crucial tasks for intermediary organization in promoting synergic collaboration. Moreover, it analyses the correlation between the development phase of TH and innovation process by identifying the blockages or gaps in the existing system. This paper contributes towards a sustainable partnership framework and provides a solution for innovation creation especially in managing stakeholders' involvement by explaining why and how collaborative intermediary organizations can facilitate the dynamic and synergy of collaboration, hence moving towards innovation.

Keyword: University-Industry-Government, Triple Helix Model, Intermediary Organization, Strategic Partnership, Innovation

1. Introduction

In the Eleventh Malaysian Plan, Malaysian government has been focusing on strengthening the relational capital by improving collaboration among all stakeholders involved in research and commercialization (Economic Planning Unit, 2016). Relational capital can be described as a collaboration that government needs with its external stakeholders (e.g. university and industry) which can generate value creation (Ghane and Akhavan, 2014; Bianchi Martini *et al.*, 2016). Therefore, TH provides a framework for UIG collaboration model that helps to shift our economy towards innovation-driven economy and increases the effectiveness of its collaboration. To stimulate TH, the government established several intermediary organizations to strengthen the UIG collaboration and ability to translate the knowledge into valuable creation of products or services through innovation and entrepreneurship (Rahim, Mohamed and Amrin, 2015; Latif, Abdullah and Jan, 2016).

2. The UIG Collaboration

The concept of University-Industry (UI) collaboration has evolved since the 1990s when TH was introduced by integrating government as a policymaker and providing a suitable ecosystem for innovation (Etzkowitz, 2008; Leydesdorff & Zawdie, 2010). Each stakeholder in UIG has their own role and responsibility, for example, university is responsible for teaching & research, industry gains market access through commercialization, and government plays a crucial role in providing a support on innovation

ecosystem (Wonglimpiyarat, 2016). Figure 1 shows the development phases of TH where it starts with internal transformations, influence other, a new tri-lateral network and finally TH organizations and the recursive effect (Etzkowitz and Dzisah, 2008).

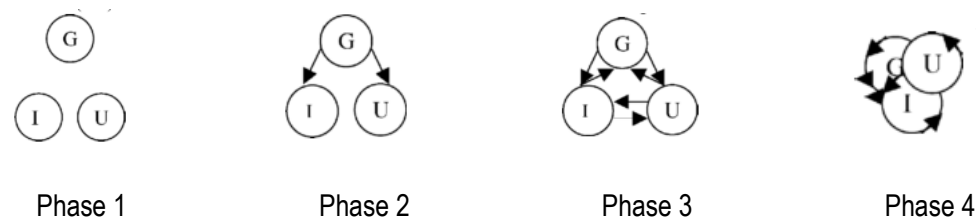


Figure 1: The Development Phase of TH
Source: Inzelt (2004)

Phase 3 denotes a synergy amongst UIG that represents the key elements of the innovative. Particularly, the trilateral networks and hybrid organizations happen when there is a dynamic interaction happening within TH when there is an active interaction amongst UIG, which leads to new ideas being generated and ultimately innovations being created. Thus, TH becomes well-balanced when there is a trade-off amongst each stakeholder to achieve similar goals. For an effective collaboration, all the resources related to UIG should be concentrated towards the similar goals which can give a synergistic effect for the development of a new breakthrough (McKerlich, Ives and McGreal, 2013; Kim and Lee, 2016). The success of UIG collaboration is expected upon the basis of the coordinated interaction which is a challenging task to perform on the operational processes and day-to-day basis.

3. Intermediary Organization

The intermediary organization acts as a catalyst towards strengthening the collaboration of TH. It is an organization established by either government or private entity focusing mainly on facilitating the research and commercialization. Intermediary organization is seen to be vital to the success of innovation, particularly in countries that otherwise might not be able to create a necessary 'critical mass' of knowledge creation activity. Johnson (2008) claimed there are five roles of intermediary organization which are 1) mediator/ arbiter, 2) sponsor/ funds/ provider, 3) filter/ legitimator, 4) technology broker, and 5) resource/ management provider. The Malaysian government has created and/ or supported organizations that act as sponsors of specific technological innovations, for example, Collaborative Research in Engineering Science & Technology (CREST), Malaysia Technology Development Corporation (MTDC), and CRADLE fund. CREST is an intermediary organization helps to accelerate the economic growth by creating an innovation research ecosystem for Electrical and Electronic (E&E) industry in Malaysia.

Past literature provides some insights on different types of intermediary organizations which established to supports TH arrangement amongst UIG (BagheriMoghadam, Hosseini and SahafZadeh, 2012; Crespín-Mazet, Goglio-Primard and Scheid, 2013). For example, an empirical research conducted by (Nakwa, Zawdie and Intarakumnerd, 2012) explores the roles of innovation that intermediary organization plays in stimulating TH networks among Small and Medium Enterprise (SME) in Thailand. The finding suggested market-led intermediary organization would be more effective in promoting TH network development than government-funded intermediaries. In addition, a comprehensive case study conducted by (Villani, Rasmussen and Grimaldi, 2017) on nine Italian intermediary organizations shows that different types of intermediary organizations address the same fundamental issue of bridging the different logics of academia and industry in different ways, whereby the findings show that intermediary organizations can reduce cognitive, geographical, organizational, and social distance in UI collaborations by addressing different proximity dimensions depending on the prior experiences of academic and industrial actors and the nature of the knowledge that is transferred.

3.1. Strategic Partnership

The intermediary organization also promotes UIG collaboration through a strategic partnership. A strategic partnership can be defined as to include other organizations such as research institutions, educational institutions, capital providers, and government organizations to stimulate economic development and strengthening competitiveness. It is typically a networked and connected system in many different ways (e.g. resources, geographical, information, mobility and sharing) and it is often involved in collaborative projects (Ablaev, 2015; Morgulis-Yakushev and Sölvell, 2017). In addition, some literature has associated strategic partnership with the theory on strategic alliances which can be considered as relevant. Both terms can be defined as a working partnership in which there is mutual recognition and understanding that the success of each party depends on the other (Roumboutsos and Chiara, 2010).

Traditionally, an organization enters partnerships to reduce production cost and exploit the internal knowledge creation (Piltan and Sowlati, 2016). This happens due to lack of capability or capacity to grow the in-house knowledge, therefore causing them to discuss with external parties on ideas and know-how (Baloh, Jha and Awazu, 2008). However, Caiazza & Stanton (2016) argued organizations nowadays are building partnership because of the intention to provide high quality of goods, better quantity of production and price, better usage of resources which push them to build a partnership and create innovations, and improving their competitiveness. Besides that, uncertainty avoidance is one of the reasons for organizations to seek network partners (Latif, Abdullah and Jan, 2016). Therefore, the partnership brings different types of information which can lead to a broadening of the organizations' scope.

Organizations cannot work in isolation because every organization is highly specialized in the niche area (Baloh, Jha and Awazu, 2008), often focusing their own capabilities on specific expertise, services, or products (e.g. research and production). Therefore, in order to become competitive in the market, organizations must improve their core capabilities and engage with business partners to supplement, expand, and apply knowledge (Rehm and Goel, 2015). As such, it is not sufficient for an organizations to simply rely on its internal knowledge base for ideas but the organizations must search for new opportunities and realize that the strategic partnership with external entities to source ideas, know-how, and capabilities will have better impacts on their achievements (Baloh, Jha and Awazu, 2008).

3.2. Innovation

Innovation is one of highly discussed topics among researchers because it has a significant impact towards improving our way of lives. Christopher (1989) defined the fundamental concept of innovation as the application of new ideas to the existing products, processes, or other aspects of the activities that lead to increasing "value". The add-on value found in the product or process innovation improvement has benefited the related stakeholders in the whole value chain. Doret & Johan (2014) claimed that the value of innovation should adapt to the fast-changing markets, technologies, and modes of competition in order to be viable and competitive in the market. Moreover, the innovation performance has become one of the most important elements towards competitiveness and national progress.

Innovation is the main driver for creating new opportunities that derive greater value for both economy and society. There have been many empirical studies showed the positive impact of TH towards innovation ecosystem (e.g. Sørensen & Hu, 2014; Weckowska, 2015). In recent years, innovation output focuses more on fulfilling the customer satisfaction through providing high-quality services and products (Caiazza and Stanton, 2016). Therefore, organizations have collaborated with other stakeholders and participated in industry-specific activities and public support (Rehm and Goel, 2015; Caiazza and Stanton, 2016). Intermediary organization helps to improve innovation ecosystem by providing a better

collaboration and integration initiatives towards stakeholders (Economic Planning Unit, 2016). The outputs from research and collaboration have been closely aligned with market demand, and private sector will be active partners in the R&D and commercialization. Consequently, there will be a higher return on investment from innovation towards Malaysia's economy (Lee, 2011).

4. Discussion

A strategic partnership can provide a source of innovative rejuvenation to UIG collaboration which has complementary skills and expertise (Baloh, Jha and Awazu, 2008). The relevant literature and critical insights of these topics are being discussed and debated to identify the gap. This research is consigned to maintain the close interaction amongst the UIG. The close intertwining of cooperation and competition in the last decades evidenced the establishment of innovation process intercompany collaboration within the strategic partnership (Ablaev, 2015). The innovation process model illustrated in (Figure 2) shows, at the research and development stage, the UIG start to engage and produce plans for new processes or blueprints, and initial prototypes of new products or processes. When it reaches the commercialization stage, the new innovative product or process is achieved through UIG partnership. Finally, at the final stage, commercialization triggers the start of another chain of events, broadly characterized as diffusion which covers the widespread adoption of the new product or process by the market.

To further explain the process, Henry Etzkowitz & Ranga (2013) published an article related to the Triple Helix System (THS) which provides an explicit explanation a systemic interaction in TH. THS is divided into three main categories which are components, relationships and functions. Components related to the UIG activities in the process of innovation characterized by increasing knowledge-intensive, communication and interconnectivity between people and institutions, mobility of people and financial capital, delocalization and globalization of production sites, labour and social relationships. The relationships described as the capacity of UIG to transform tension and conflict of interest into converging interests relating to common objectives and 'win-win' situations are more important given that the very nature of conflicts and tensions. Finally, the function of THS is to generate, diffuse and utilize knowledge and innovation goes beyond the technology function and four types of competencies (selective, organizational, technical and learning) described in the innovation systems theory.

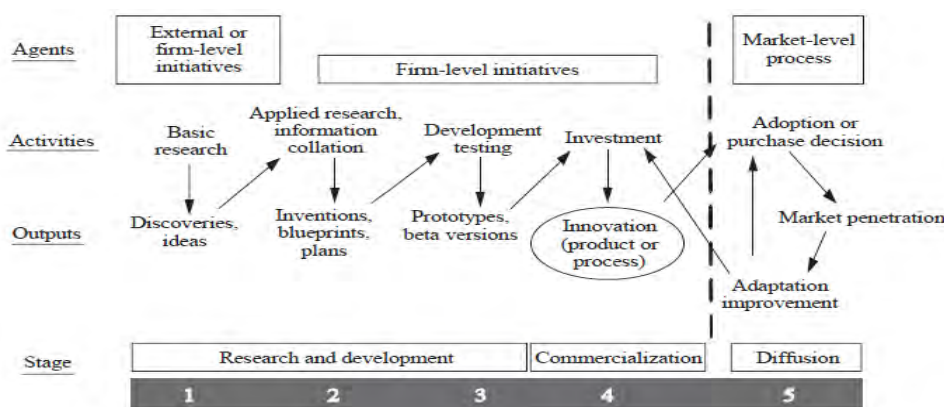


Figure 2: The Stages of Innovation Process
Source: Christopher (1989)

Business performance is a function of innovation which results a significantly affects towards competitiveness amongst SMEs (Najib and Kiminami, 2011). While prior studies have investigated factors, processes and pathways traversed in user innovation within the real world (Salvador, Mariotti and Conicella, 2013), there are limited literature attempts to explain the impact on of TH and innovation

especially towards the initiatives governs by intermediary organization. The new integration of (Figure 1) the development phase of TH and (Figure 2) stages of innovation process provide a new sustainable partnership framework and a better solution for innovation creation. Therefore, the gap is to identify the integration process of TH and its factor associated with innovation. Furthermore, there are limited studies analyse of the micro-mechanisms especially on strategic partnership and innovation process by using qualitative study, especially in Malaysia.

Research and Development		Commercialization	Diffusion
Internal transformations	Influence other	Tri-lateral network	Recursive effect
Phase 1	Phase 2	Phase 3	Phase 4

Figure 3: Sustainable Partnership Framework

5. Implication for Theory and Practices

This paper provides a new integration towards sustainable partnership framework which provides a better solution for intermediary organization approach. Furthermore, the sustainable partnership framework helps to hasten the research team and boost up the innovation process by identifying the phases and examining the respective agents, activities and the outputs. In addition, it helps intermediary organizations' function in strengthening the UIG collaboration which can be used to facilitate the development of innovations in terms of coordination and promote innovative outcomes. Intermediary organization should provide a mechanism in handling the issues pertaining to strategic partnership and innovation because it is a part of national agenda in research and commercialization to achieve high-income economy and sustainable innovation economy in the long run. The theoretical significance of this research where it covers an in-depth examination of intermediary organizations in Malaysia which promote TH collaboration. However, the framework has a limitation in explaining other external factors which may impact the scope of study. The future study should cover the mechanism of competitiveness and social involvement in the strategic partnership, innovation, and explores further TH as it is an important collaboration model, especially in the context of Malaysia.

6. Conclusion

With the increasingly competitive global market demand for innovative products requires all the stakeholders to have better collaboration. The finding helps intermediary organization to find the best solutions for the integration of THS in developing a strategic partnership and innovation. It also provides an in-depth view of the circulation of knowledge flows and resources within and amongst the UIG, helping to identify existing blockages or gaps. This study provides a framework which helps intermediary organization to be agile and continues to strengthen the dynamic interaction amongst the UIG which provides a good foundation for the process of strategic partnership and innovation in Malaysia.

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